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10/053,179	01/15/2002	Kenneth L. Stanwood	ENSEMB.035A	2846

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EXAMINER	
SEFCHECK, GREGORY B	

ART UNIT	PAPER NUMBER
2616	

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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st

<b>Office Action Summary</b>	Application No. 10/053,179	Applicant(s) STANWOOD ET AL.	
	Examiner Gregory B. Sefcheck	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-21,23,24,26,29-31,33-36,38-40,42-44 and 47-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-21,23,24,26,29-31,33-36,38-40,42-44 and 47-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

- Applicant's Request for Continued Examination filed 5/23/2007 is acknowledged.
- Claims 1, 3, 5-12, 16-19, 23, 24, 26, 29, 33-35, 38-40, and 42-44 have been amended.
- Claims 2, 4, 22, 25, 27, 28, 32, 37, 41, and 45 have been cancelled.
- Claims 20, 21, and 46 were previously cancelled.
- Claims 47-52 have been added.
- Claims 1, 3, 5-21, 23, 24, 26, 29-31, 33-36, 38-40, 42-44, and 47-52 remain pending.

### ***Claim Objections***

1. Claims 43 and 44 are objected to because of the following informalities:  
Claims 43, line 3 and Claim 44, lines 3 and 4: change "source" to - - service - -  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, 5, 7, 9-21, 23, 24, 29-31, 33-36, 38, 39, 42-44, and 47-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Woodward et al. (US006151318A), hereafter Woodward.

- Regarding claims 1, 23, 24, 39, and 50,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a broadband satellite network (Title; Fig. 4; meets claim 1,24 – method/system having base station and at least one node over a link).

Referring to Figs. 2 and 4, Woodward discloses receiving ATM (service) cells 100,110,120,130 at input 405 (backhaul interface), the ATM cells having a particular VPI/VCI assignment (Col. 2, lines 30-31; meets claim 1,39,50 – receiving/providing/identifying service data packets from one or more data sources in one or more formats to be processed; claim 23 – each incoming packet associated with one of a plurality of connections).

Woodward shows the received cells are then converted into (protocol) data packets 140,150 having a payload and header by data packet formatter 430 (Col. 2, lines 42-62; meets claim 1,23,24,39 – method and converter means for converting service data packets of first or second format into protocol packets in a third format; claim 23,50 – preparing first packet in third format having payload and header identifying a first connection).

Woodward shows the ATM cells are packed and fragmented into data packets by mapping cell 100 to the payload of packet 140 (meets claim 1,24,39 - mapping a first

service data packet or a fragment of a first service data packet to the payload of a current data packet in a third format; claim 23 - storing a first incoming information packet associated with the first connection or a fragment of a first incoming information packet associated with the first connection in the payload of the first information packet in the third format).

Fig. 2 further shows the payload of packet 140 is large enough to accommodate all of cell 110 (meets claim 1,24,50 - determining whether a second service data packet is larger than the remaining payload of the current data packet in a third format; claim 1,24,39,50 - if the second service data packet is not larger than the remaining payload of the current data packet in a third format, then mapping the second service data, packet to the remaining payload of the current data packet in a third format; claim 23 - receiving a second incoming information packet associated with the first connection; claim 23 - determining if the second incoming information packet is smaller than the available payload in the first information packet in the third format; claim 23 - storing the second incoming information packet in the payload of the first information packet in the third format if the second incoming information packet is smaller than the available payload in the first information packet in the third format).

If it is determined that the payload of packet 140 is not large enough to accommodate another complete cell, as in the case with cell 120 of Fig. 2, a portion (fragment) of cell 120 is mapped to packet 140, and the remainder of cell 120 is mapped to the packet 150 (meets claim 1,24,39,50 - if the second service data packet is larger than the remaining payload of the current data packet in a third format, then

fragmenting the second service data packet into at least two fragments and mapping the first fragment of the second service data packet to the remaining payload of the current data packet in a third format; claim 23 - otherwise fragmenting the second incoming information packet by storing only that amount of the second incoming information packet that will fit in the first information packet in the third format in the payload of the first information packet of a third format and storing the remainder of the second incoming information packet in the payload of a subsequent information packet in the third format; claim 23 - preparing a subsequent information packet in the third format having a payload and a header; claim 23 - storing any existing remainder of the second incoming information packet in the payload of the subsequent information packet in the third format if the available payload is large enough to store the remainder of the second incoming information packet, otherwise fragmenting the remainder of the second incoming information packet by storing only that portion of the remainder of the second incoming information packet that will fit in the available payload of the subsequent information packet in the third format in the payload of the subsequent information packet in the third format and storing the remainder of the incoming second information packet in the payload of a subsequent information packet in the third format having control information identifying the first connection in its header).

Woodward shows that the header of packets 140,150 include a fragment type field 144 that describes the ATM cells, or fragments thereof, contained within the packets' payloads (Col. 4-5, lines 64-25; meets claim 23,50 – updating/adjusting the header of the first information packet in the third format to indicate the presence and

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location of an incomplete information packet if an incomplete information packet is present; claim 23 - storing control information about any existing remainder of the second incoming information packet in the header of the subsequent information packet in the third format; claim 23 – updating the header of the subsequent information packet in the third format to indicate the presence and location of an incomplete information packet in the payload if an incomplete information packet is present).

Data packets 140 and 150, after the payload is packed with ATM cells, are transmitted through output 450 towards a destination over the satellite (wireless) network (meets claim 1,24,39 – transmitter for wirelessly transmitting data packets in third format to a recipient).

- Regarding claims 3 and 7,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward discloses the source node as part of an ATM network and encapsulating ATM cells (meets claim 3 – one or more data sources can be the internet, other communications networks, data bases or combination thereof; claim 7 – one or more formats includes ATM).

- Regarding claim 5,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward discloses packing ATM cells into the payloads of packets 140,150 in order to provide (control) access to the transmission media of the satellite network (meets claim 5 – third format is a MAC format).

- Regarding claims 9 and 29,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Fig. 2 of Woodward shows ATM cells are encapsulated into the payload of packets 140,150 based upon routing information contained in the ATM cell headers 102,112,122,132 and utilized in generating a header for the packets 140,150 (Col. 2, lines 29-31 and 52-61; meets claim 9,29 – service data packets have control information and converting is accomplished by utilizing the control information in a header of the third format packets and storing service packets in payload of third format packet).

- Regarding claims 10, 30, and 44,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward discloses that the ATM cells encapsulated into the payloads of packets 140,150 (Fig. 2) may be less than the standard 53 byte ATM cell by



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compressing the header of the ATM cell to less than the standard 5 bytes. The information contained within the compressed header of an ATM cell is packed into the payload of packets 140,150 along with the ATM payload (Col. 4, lines 25-57; meets claim 10,30,44 – some of the payload area of the third format data packets includes packing subheader to indicate the length of the service data packet).

- Regarding claims 11, 12, 31, 42, 43, and 52,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward shows that the header of packets 140,150 include a fragment type field 144 that describes the various ATM cells, or fragments thereof, contained within the respective packets' payloads (Col. 4-5, lines 64-25; meets claim 11,31,42,43 – header contains plurality of fragmentation control bits to indicate the presence and orientation of fragments along with any whole service packets in the payload portion; claim 12 – fragmentation comprises creating a fragment including less than all of the service data packet in a corresponding third format packet and indicating this in the fragmentation control bits; claim 52 - mapping a fragment to the payload of the current protocol data unit further comprises setting fragmentation bits in a header portion of the current protocol data unit to indicate the presence of a fragment).

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- Regarding claims 13, 14, 18, and 33,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward discloses a preferred embodiment of 2 control bits for fragmentation, but discloses that more or less bits could be used to allow for more or less combinations of whole and/or fragments within a payload (Col. 4-5, lines 64-3; meets claim 13 – two fragmentation control bits; claim 14,33 – more than two fragmentation control bits; claim 18 – fragmentation comprises any combination of whole and fragments of service packets, where the combinations are limited by the number of fragmentation control bits).

- Regarding claims 15, 16, 34, and 35,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward shows that fragmentation and packing of the ATM cells into packets 140,150 is performed within the ATM (link) layer by data packet formatter 430 under control of a data packet formatter controller 438 (processor; Col. 7, lines 5-21; meets claim 15,34 – fragmentation and packing done in same layer; claim 16,35 – fragmentation and packing done by same processor).

- Regarding claims 17 and 36,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Fig. 2 shows that an end fragment of cell 120 can be mapped to the beginning of a payload 156. Also shown is a first fragment of cell 120 mapped to the end of payload 146 (meets claim 17,36 – mapping an end fragment at the beginning of the payload, a first fragment at the end of the payload or a lone continuing fragment in the payload).

- Regarding claims 19 and 38,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

The packing and fragmentation of ATM cells into packet payloads disclosed by Woodward acts as a bandwidth allocation algorithm in which the efficiency of system bandwidth is increased while preserving low latency of communication (Abstract; Col. 3, lines 7-28; meets claim 19,38 – utilizing information regarding the packing and fragmentation as part of an algorithm for allocation of bandwidth).

- Regarding claims 47 and 48,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Fig. 2 further shows the payload of packet 140 is large enough to accommodate all of cell 110. If it is determined that the payload of packet 140 is not large enough to accommodate another complete cell, as in the case with cell 120 of Fig. 2, a portion (fragment) of cell 120 is mapped to packet 140, and the remainder of cell 120 is mapped to the packet 150.

As shown above, ATM cells (or fragments thereof) are encapsulated within the payload of a packet until the payload is filled, at which point a subsequent packet is prepared, until all pending ATM cells have been encapsulated into packets (meets claim 47 - if the mapping of the first service data packet or a fragment of a first service data packet to the payload of a current data packet in a third format fills the payload of the current data packet in third format, then begin preparing a new data packet in a third format; claim 48 - if the second service data packet is smaller than the remaining payload of the current data packet in a third format, then mapping the second service data packet to the remaining payload of the current data packet in a third format and processing a third service data packet to fill the remaining payload in the current data packet in a third format).

- Regarding claims 49 and 51,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward shows that the ATM cells packed into the payload of packets 140,150 if the connection (VPI and/or VCI) of the ATM cells are common to the destination stored in the header of packet 140,150, such that the ATM cells can be un-packed and sent on towards their destinations after they are sent through the broadband satellite network (Col. 2, lines 55-61; Col. 3, lines 30-32; meets claim 49 - the current data packet in a third format includes a header portion with a connection identifier which identifies the destination to which the current data packet in a third format is to be delivered and only service data packets associated with the same connection identifier are mapped to the payload of the current data packet in a third format;

Woodward further shows packing of compressed ATM cells enhances bandwidth utilization when the ATM cells are from the same source and/or destined for the same user (Col. 4, lines 37-46; meets claim 51 - the current protocol data unit includes a header portion with a connection identifier which identifies the destination to which the current protocol data unit is to be delivered and the step of identify a current service data unit or a current fragment of a service data unit that is next for processing comprises only identifying such service data units or fragments that are associated with the same connection identifier).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward in view of Jha (US007006525B1).

- Regarding claim 6,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward does not explicitly disclose IP data being encapsulated into packets.

Jha discloses a hybrid data transport scheme. Jha discloses the ability to transport data, such as IP and ATM data, in SONET frames. Jha shows that IP and/or ATM data that does not fully fit into a single SONET frame may be fragmented and transported over multiple frames (Fig. 5-7, 9-11; Col. 10, lines 11-15; meets claim 6 – one or more formats includes IP).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Woodward by enabling the fragmentation and packing of IP data, as taught by Jha. This would enable the transport of various data types using efficiency of communication bandwidth taught by Woodward in transporting IP packets.

6. Claims 8, 26, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward in view of Sturza et al. (US006665296B1), hereafter Sturza.

- In regards to Claim 8,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Woodward fails to explicitly disclose transmitting via radio waves in the millimeter bandwidth spectrum.

Sturza discloses a two-way communication system for subscribers to access a wide area network (Abstract). Sturza shows that radio communication takes place on millimeter radio signals (Col. 4, lines 47-52; Col. 5, lines 5-7; meets claim 8 – transmitting is via radio waves in the millimeter bandwidth spectrum).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the method and system of Woodward using radio waves in the millimeter bandwidth spectrum, as shown by Sturza. This would enable method and system of Woodward to use the standard bandwidth spectrum for radio wave communication.

- In regards to Claims 26 and 40,

Woodward discloses a method and apparatus for encapsulating ATM cells at a source node in a satellite network that meets all limitations of the parent claim.

Though Woodward discloses wireless implementation of the method and system, Woodward does not explicitly disclose a base station or node comprising the component structure as claimed in claims 26 and 40.

Sturza discloses a two-way communication system for subscribers to access a wide area network (Abstract). Referring to Fig. 8, Sturza discloses the structure of communication terminal comprising a modem 52, and IF-RF interface, and an antenna to transmit and receive RF signals (meets claim 26,40 – modem configured to modulate information onto analog signals and demodulate information from analog signals; claim 26,40 – IF-RF module for converting IF signal to RF signal; claim 26 – antenna to transmit and receive RF signals).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method and system of Woodward for implementation in the two-way RF-IF system as shown by Sturza, thereby enabling the efficiency of communicating data and/or data fragments shown by Woodward in the environment of Sturza.



***Response to Arguments***

7. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory B. Sefcheck whose telephone number is 571-272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Gregory Sefcheck  
Patent Examiner

7/13/2007

